

FORM PTO-1399 (Modified) (REV 11-2000)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S SOCKET NUMBER PG3694USW	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR <b>10/031261</b> )	
INTERNATIONAL APPLICATION NO. <b>PCT/EP00/03518</b>		INTERNATIONAL FILING DATE <b>19 Apr. 2000</b>		PRIORITY DATE CLAIMED <b>24 April 1999</b>	
TITLE OF INVENTION <b>Medicament Carrier</b>					
APPLICANT(S) (FOR DO/EO/US) <b>Stanley George BONNEY; Michael Birsha DAVIES; James William GODFREY; Sylvia Maria HAGLUND; Paul Kenneth RAND</b>					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371</li> <li>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.</li> <li>4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31).</li> <li>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c) (2)) <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau).</li> <li>b. <input checked="" type="checkbox"/> has been communicated by the International Bureau.</li> <li>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li>6. <input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> is attached hereto.</li> <li>b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4)</li> </ol> </li> <li>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)) <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau).</li> <li>b. <input type="checkbox"/> have been communicated by the International Bureau.</li> <li>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li>d. <input checked="" type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li>8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li>9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).</li> <li>10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5))</li> <li>11. <input checked="" type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/ISA/409).</li> <li>12. <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210).</li> </ol>					
Items 13 to 20 below concern document(s) or information included:					
<ol style="list-style-type: none"> <li>13. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</li> <li>14. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</li> <li>15. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment</li> <li>16. <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.</li> <li>17. <input type="checkbox"/> A substitute specification</li> <li>18. <input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li>19. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.</li> <li>20. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</li> <li>21. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).</li> <li>22. <input checked="" type="checkbox"/> Certificate of Mailing by Express Mail</li> <li>23. <input checked="" type="checkbox"/> Other items or information:  <b>Copy of PCT Request</b>  <b>Copy of PCT Publication Cover Sheet</b> </li> </ol>					

531 Rec'd PCT/P 10/03/2001

U.S. APPLICATION NO. (IF KNOWN) **10/031261** INTERNATIONAL APPLICATION NO. **PCT/EP00/03518** ATORNEY/AGENT'S NUMBER **PG3694USW**

24. The following fees are submitted:

**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :**

<input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO .....	<b>\$1040.00</b>
<input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO .....	<b>\$890.00</b>
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO .....	<b>\$740.00</b>
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) .....	<b>\$710.00</b>
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) .....	<b>\$100.00</b>

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

	<b>\$890.00</b>
--	-----------------

Surcharge of **\$130.00** for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492 (e)) ☐ 20 ☐ 30

	<b>\$0.00</b>
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CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	85 - 20 =	65	x \$18.00	<b>\$1,170.00</b>
Independent claims	2 - 3 =	0	x \$84.00	<b>\$0.00</b>

Multiple Dependent Claims (check if applicable) ☐ **\$0.00**

**TOTAL OF ABOVE CALCULATIONS =**

	<b>\$2,060.00</b>
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☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.

**SUBTOTAL =**

	<b>\$2,060.00</b>
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Processing fee of **\$130.00** for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492 (f)) ☐ 20 ☐ 30

**TOTAL NATIONAL FEE =**

	<b>\$2,060.00</b>
--	-------------------

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). ☐

**TOTAL FEES ENCLOSED =**

	<b>\$2,060.00</b>
--	-------------------

Amount to be refunded	\$
charged	\$

a. ☐ A check in the amount of \_\_\_\_\_ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. **07-1392** in the amount of **\$2,060.00** to cover the above fees. A duplicate copy of this sheet is enclosed.


c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **07-1392**. A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and payment to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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GlaxoSmithKline  
Corporate Intellectual Property  
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Research Triangle Park, NC 27709  
Telephone: 919-483-2370  
Fax: 919-483-7988

  
**23347**  
 PATENT TRADEMARK OFFICE

SIGNATURE

**Christopher P. Rogers**

NAME

**36334**

REGISTRATION NUMBER

**October 25 2001**

DATE

10/031261

531 Rec'd PCT/PT 21 OCT 2001

## IN THE UNITED STATES PATENT OFFICE

Applicant : BONNEY, Stanley G., et al.  
Appl. No. :  
Filed : on date herewith  
Title : Medicament Carrier

Grp./A.U. :  
Examiner :

Docket: : PG3694USW

Honorable Commissioner of Patents  
Washington DC 20231

## PRELIMINARY AMENDMENT

Sir:

The above identified application is being transmitted herewith for entry in the U.S. National Phase under Chapter II of the PCT. Please amend the application as follows.

In the Abstract:

Please substitute the attached Abstract, which has been placed on a separate sheet of paper according to U.S. practice, as required under 37 CFR 1.72(b).

In the Specification:

On the first line of the specification, after the Title, please add:

--This application is a US National Phase filing, filed under 35 USC 371 of PCT Patent Application PCT/EP00/03518 filed 19 April 2000 with priority application with priority to GB9909357.7 filed 24 April 1999 in the United Kingdom.--

To comply with 37 CFR 1.52, the handwritten portion of the specification as found in the International Preliminary Examination Report, sent to the USPTO by the EPO, are amended as follows:

Please amend the following;

Amend page 2, paragraph 5;

According to one aspect of the present invention there is provided a carrier comprising a sheet having a first portion for containment of product, said retainer comprising a pocket or a hole therein a fold in the second portion such that the second portion is foldable towards the retainer to form a cover therefor; and a join between the cover and the retainer.

Amend page 2, paragraph 6;

Preferably the sheet comprises an elongate strip. More preferably the hole additionally comprises a seal applied therefo.

Amend page 4, paragraph 6;

Preferably, the retainer consists of a pocket or hole.

Amend page 5, paragraph 2;

According to another aspect of the present invention, there is provided a method of making a carrier comprising forming a retainer, comprising a pocket or hole therein, in a first portion of a sheet or elongate strip; filling the retainer with product; folding a second portion of the sheet or elongate strip towards the retainer to form a cover therefor; and forming a join between the cover and the retainer.

In the Claims:

Claim 1. (Amended) A carrier comprising a sheet having a first portion and a second portion; a retainer in said first portion for containment of product, said retainer comprising a pocket or a hole therein; a fold in said second portion such that the second portion is foldable towards the retainer to form a cover therefor; and a join between said cover and the retainer.

Claim 3. (Amended) A carrier according to claim 1, wherein said hole additionally comprises a seal applied thereto.

Claim 4. (Amended) A carrier according to claim 1 comprising a plurality of retainers in the first portion, wherein the second portion is foldable towards said plurality of retainers to form a cover therefor; and a join between said cover and the plurality of retainers.

Claim 5. (Amended) A carrier according to claim 1, additionally comprising a fold in said first portion such that the first portion is foldable towards the retainer to form a base therefor; and a join between said base and the retainer.

Claim 6. (Amended) A carrier according to claim 1, additionally comprising an inert support within the retainer for bearing product thereon.

Claim 7. (Amended) A carrier according to claim 1, comprising a second fold in the second portion to form a pull release tab.

Claim 9. (Amended) A carrier according to claim 7, wherein the pull release tab has a looped end.

Claim 10. (Amended) A carrier according to claim 7, wherein said pull release tab has at least one perforation therein.

Claim 11. (Amended) A carrier in multi-unit form comprising a series arrangement of a plurality of carriers according to any claim 1.

Claim 15. (Amended) A carrier according to claim 1, wherein the sheet or elongate strip is flexible.

Claim 16. (Amended) A carrier according to claim 1, wherein the sheet or elongate strip comprises material selected from the group consisting of metal foil, an organic polymeric material and paper.

Claim 18.(Amended) A carrier according to claim 1, wherein the join is formable by a joining method selected from the group consisting of heat, laser, radio frequency, adhesive, staple, stamp, pressure and ultrasonic sealing.

Claim 19. (Amended) A carrier according to claim 1, wherein the join is peelable to enable peelable access to the retainer.

Claim 20. (Amended) A carrier according to claim 1, wherein the retainer is shaped for receipt by a holder.

Claim 21. (Amended) A carrier according to claim 1, comprising a medicament therein.

Claim 23. (Amended) A carrier according to claim 21, wherein the medicament is selected from the group consisting of albuterol, salmeterol, ipratropium bromide, fluticasone propionate and beclomethasone dipropionate and salts or solvates thereof and any mixtures thereof.

Claim 24. (Amended) An inhalation device comprising a housing in combination with a carrier as claimed in claim 21.

Claim 26. (Amended) An inhalation device according to claim 24, wherein the carrier comprises a pull release tab and the pull release tab protrudes from the housing.

Claim 29. (Amended) A method of making a carrier comprising forming a retainer , comprising a pocket or hole therein, in a first portion of a sheet or elongate strip; filling said retainer with product; folding a second portion of said sheet or elongate strip towards

the retainer to form a cover therefor; and forming a join between said cover and the retainer.

Claim 32. (Amended) A method of making a carrier in multi-unit form comprising successive iterations of the method according to claim 29 to form a series arrangement of a plurality of carriers.

Claim 33. (Amended) A method of opening a carrier as claimed in claim 7 comprising pulling the pull release tab in order to enable access to the retainer.

Claim 34. (Amended) Use of a carrier, according to claim 21-for dispensing medicament.

Claim 37. (Amended) Use of a carrier according to claim 36, wherein said medicament comprises a medicament selected from the group consisting albuterol, salmeterol, ipratropium bromide, fluticasone propionate, and beclomethasone dipropionate, and salts or solvates thereof, and mixtures thereof.

Claim 38. A carrier according to claim 1 comprising an electronic component therein

Claim 40. (Amended) A carrier according to claim 1, comprising a food therein.

Claim 42. (Amended) A carrier according to claim 1, comprising a beverage therein.

Claim 44. (Amended) A carrier according to claim 1, comprising a toiletry therein.

Claim 46. (Amended) A carrier according to claim 1, comprising a cleanser therein.

Claim 48. (Amended) A carrier according claim 1, comprising a disinfectant therein.

- Claim 50. (Amended) A carrier according to claim 1, comprising a light-sensitive material therein.
- Claim 52. (Amended) A carrier according to claim 1, comprising a marking material therein.
- Claim 54. (Amended) A carrier according to claim 1, comprising a covering material therein.
- Claim 56. (Amended) A carrier according to claim 1, comprising a toy therein.
- Claim 58. (Amended) A carrier according to claim 1, comprising haberdashery therein.
- Claim 60. (Amended) A carrier according to claim 1, comprising a tool therein.
- Claim 65. (Amended) A carrier according to claim 1, comprising stationery therein.
- Claim 67. (Amended) A carrier according to claim 1, comprising an adhesive therein.
- Claim 69. (Amended) A carrier according to claim 1, comprising an agrochemical therein.
- Claim 71. (Amended) A carrier according to claim 1, comprising a plant seed therein.
- Claim 73. (Amended) A carrier according to claim 1, comprising a contraceptive therein.



Claim 77. (Amended) A carrier according to claim 1, comprising a medical instrument therein.

Claim 79. (Amended) A carrier according to claim 1, comprising laboratory equipment therein.

Claim 81. (Amended) A carrier according to claim 1, comprising a catamenial product therein.

Claim 83. (Amended) A carrier according to claim 1, comprising nicotine therein.

Please cancel claims 84 and 85.

Please add claims 86 and 87

--86. A carrier according to claim 1, wherein the retainer consists of a pocket or hole.--

--87. A carrier according to claim 36, wherein said medicament comprises albuterol sulfate.--

# REMARKS/ ARGUMENTS

This application is a US National Phase filing, filed under 35 USC 371, of PCT Patent Application No. PCT/EP00/03518 filed 19 April 2000, claiming priority to patent application no. GB 9909357.5 filed 24 April 1999.

Specification has been amended to replace handwritten edits to pages 2, 4 and 5.

Claims 1-83, and 86 are pending in the present application.

Claims 1, 3, and 29 have been amended to comply with the handwritten amendments made in the Amended Sheets filed with the European Patent Office after the PCT International Preliminary Examination. Claims 3-7, 9-11, 15-16, 18-21, 23-24, 26, 29, 32-34, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 65, 67, 69, 71, 73, 77,79, 81, and 83 have been amended herein to delete multiple dependencies and place the claims in more suitable form for US prosecution.

Claims 84 and 85 have been cancelled.

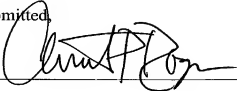
New Claims 86 and 87 have been added.

Attached hereto is a marked version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

25 Oct 2001  
\_\_\_\_\_  
Date

\_\_\_\_\_  


Christopher P. Rogers  
Reg. No. 36,334  
(919) 483-1240

**VERSION WITH MARKINGS TO SHOW CHANGES MADE****In the Specification:**

Amend page 2, paragraph 5;

According to one aspect of the present invention there is provided a carrier comprising a sheet having a first portion for containment of product, said retainer comprising a pocket or a hole therein a fold in the second portion such that the second portion is foldable towards the retainer to form a cover therefor; and a join between the cover and the retainer.

Amend page 2, paragraph 6;

Preferably the sheet comprises an elongate strip. More preferably the [retainer comprises a pocket or a] hole additionally comprises a seal applied therefo.

Amend page 4, paragraph 6;

Preferably, the retainer consists of a pocket or hole.

Amend page 5, paragraph 2;

According to another aspect of the present invention, there is provided a method of making a carrier comprising forming a retainer, comprising a pocket or hole therein, in a first portion of a sheet or elongate strip; filling the retainer with product; folding a second portion of the sheet or elongate strip towards the retainer to form a cover therefor; and forming a join between the cover and the retainer.

**In the Claims**

1. (Amended) A carrier comprising a sheet having a first portion and a second portion, said retainer comprising a pocket or a hole therein; a retainer in said first portion for containment of product; a fold in said second portion such that the second portion is foldable towards the said retainer to form a cover therefor; and a join between said cover and the retainer.

3.(Amended) A carrier according to claim 1 ~~either of claims 1 or 2~~, wherein said ~~retainer comprises a pocket or a hole~~ additionally comprises a seal applied thereto.

4.(Amended) A carrier according to claim 1 ~~any of claims 1 to 3~~ comprising a plurality of retainers in the first portion, wherein the second portion is foldable towards said plurality of retainers to form a cover therefor; and a join between said cover and the plurality of retainers.

5.(Amended) A carrier according to claim 1 ~~any of claims 1 to 3~~, additionally comprising a fold in said first portion such that the first portion is foldable towards the retainer to form a base therefor; and a join between said base and the retainer.

6.(Amended) A carrier according to claim 1 ~~any of claims 1 to 5~~, additionally comprising an inert support within the retainer for bearing product thereon.

7.(Amended) A carrier according to claim 1 ~~any of claims 1 to 6~~, comprising a second fold in the second portion to form a pull release tab.

9.(Amended) A carrier according to claim 7 ~~either of claims 7 or 8~~, wherein the pull release tab has a looped end.

10.(Amended) A carrier according to claim 7 ~~any of claims 7 to 10~~, wherein said pull release tab has at least one perforation therein.

11. (Amended) A carrier in multi-unit form comprising a series arrangement of a plurality of carriers according to any claim 1 ~~of claims 1 to 10~~.

15. (Amended) A carrier according to claim 1 ~~any claims 1 to 14~~, wherein the sheet or elongate strip is flexible.

16. (Amended) A carrier according to claim 1 ~~any of claims 1 to 15~~, wherein the sheet or elongate strip comprises material selected from the group consisting of metal foil, an organic polymeric material and paper.
- 18.(Amended) A carrier according to claim 1 ~~any one of claims 1 to 17~~, wherein the join is formable by a joining method selected from the group consisting of heat, laser, radio frequency, adhesive, staple, stamp, pressure and ultrasonic sealing.
19. (Amended) A carrier according to claim 1 ~~any one of claims 1 to 18~~, wherein the join is peelable to enable peeciable access to the retainer.
20. (Amended) A carrier according to claim 1 ~~any one of claims 1 to 19~~, wherein the retainer is shaped for receipt by a holder.
- 21.(Amended) A carrier according to claim 1 ~~any one of claims 1 to 20~~, comprising a medicament therein.
23. (Amended) A carrier according to claim 21 ~~either of claims 21 or 22~~, wherein the medicament is selected from the group consisting of albuterol, salmeterol, ipratropium bromide, fluticasone propionate and beclomethasone dipropionate and salts or solvates thereof and any mixtures thereof.
24. (Amended) An inhalation device comprising a housing in combination with a carrier as claimed in claim 21 ~~any of claims 21 to 23~~.
26. (Amended) An inhalation device according to claim 24 ~~either of claims 24 or 25~~, wherein the carrier comprises a pull release tab and the pull release tab protrudes from the housing.

39. (Amended) A method of making a carrier comprising forming a retainer , comprising a pocket or hole therein, in a first portion of a sheet or elongate strip; filling said retainer with product; folding a second portion of said sheet or elongate strip towards the retainer to form a cover therefor; and forming a join between said cover and the retainer.
32. (Amended) A method of making a carrier in multi-unit form comprising successive iterations of the method according to claim 29 ~~any of claims 29 to 31~~ to form a series arrangement of a plurality of carriers.
33. (Amended) A method of opening a carrier as claimed in claim 7 ~~any of claims 7 to 23~~ comprising pulling the pull release tab in order to enable access to the retainer.
34. (Amended) Use of a carrier, according to claim 21 ~~any of claims 21 to 23~~ for dispensing medicament.
37. (Amended) Use of a carrier according to claim 36, wherein said medicament ~~is salbutamol or~~ comprises a medicament selected from the group consisting albuterol, salmeterol, ipratropium bromide, fluticasone propionate, and beclomethasone dipropionate, and salts or solvates thereof, and mixtures thereof.
38. A carrier according to ~~any of claims~~ claim 1 to 20, comprising an electronic component therein
40. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a food therein.
42. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a beverage therein.

44. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a toiletry therein.
46. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a cleanser therein.
48. (Amended) A carrier according claim 1 ~~any of claims 1 to 20~~, comprising a disinfectant therein.
50. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a light-sensitive material therein.
52. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a marking material therein.
54. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a covering material therein.
56. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a toy therein.
58. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising haberdashery therein.
60. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a tool therein.
65. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising stationery therein.



67. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising an adhesive therein.

69. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising an agrochemical therein.

71. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a plant seed therein.

73. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a contraceptive therein.

77. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a medical instrument therein.

79. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising laboratory equipment therein.

81. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising a catemenial product therein.

83. (Amended) A carrier according to claim 1 ~~any of claims 1 to 20~~, comprising nicotine therein.

Claims 84 and 85 were cancelled.

~~84. A carrier as substantially herein described with reference to the accompanying drawings.~~

~~55. — An inhalation device as substantially herein described with reference to the accompanying drawings.~~

Claims 86 and 87 were added:

--86. A carrier according to claim 1, wherein the retainer consists of a pocket or hole.--

--87. A carrier according to claim 36, wherein said medicament comprises albuterol sulfate.—

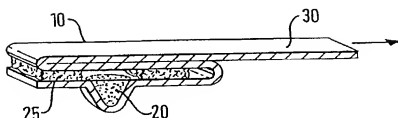
10/031261

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## MEDICAMENT CARRIER

## Abstract

There is provided a carrier comprising a sheet (10) having a first portion and a second portion; a retainer (20) in said first portion for containment of product; a fold in said second portion such that the second portion is foldable towards said retainer to form a cover therefor; and a join between said cover and the retainer. The carrier is suitable for the containment of a range of different products, particularly medicaments



### Medicament Carrier

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The present invention relates to a carrier for containment of a product. In particular, it relates to a medicament carrier for incorporation into an inhalation device to enable administration of medicament to a patient.

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Individual carriers or blister packs are widely used across many different industries to package, present and deliver products to customers, users and patients. Thus, for instance, blister packs containing unit quantities of food, toiletries, cosmetics, electrical and photographic products are commonly sold in supermarkets. These packs are generally designed to provide a clean, durable, moisture-free environment to protect and present products while at the same time offering easy accessibility for the consumer at low cost. Blister packs are particularly suitable for use within the pharmaceutical and health care industries.

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Inhalation devices are known for use with blister packs in which the medicament is held in powder form in the blisters thereof. Such packs are typically comprised of two separate entities, one of which is suitably formed to define the medicament retainer and the other is hermetically sealed to the first to form the medicament carrier. It is an object of the present invention to provide a medicament carrier wherein the carrier comprises a single sheet or elongate strip thus providing significant advantages over the prior art in that the strip is straightforward to manufacture, providing both ease of use and reduction in manufacturing costs.

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Known drug delivery systems including blister packs generally include a puncturing member, which punctures each blister in turn thus enabling the medicament to be inhaled therefrom. Generally release of the medicament dose is by puncture or rupture of the second entity. Such packs suffer from the disadvantage that they may be difficult to use, particularly as the dose releasing means may comprise one or more elongate members, such as cords or tapes,

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which are separately attached to films used to seal the medicament retainers. The present invention in embodiments provides advantages over such packs in that it is especially useful for the elderly and infirm since the free end of the strip is readily identifiable and simple to grasp, without the added complication of numerous cords or tapes which act as a separate release mechanism.

It will also be seen that in several embodiments of the present invention the free end of the sheet or strip is peeled back automatically by virtue of a releasing means incorporated into the inhalation device, hence avoiding the need to grasp the strip manually. Such a feature further enhances the ease of use of the inhalation device since minimum force is required by the user to peel back the medicament retainer.

It is also an object of the present invention to provide a medicament carrier for use in combination with an inhalation device, wherein the design of the inhalation device has the potential, if desired, to handle a medicament carrier having a large number of discrete unit doses without the device becoming unacceptably large. Thus, although a single use inhaler is referred to in the drawings/illustrations, it is possible that such an inhaler may be easily adapted to accommodate a multi-dose medicament container.

It is a further object of the present invention to provide a carrier for a wide range of different product types, comprising a single sheet or elongate strip, which is easy to use and of low manufacturing cost.

According to one aspect of the present invention there is provided a carrier comprising a sheet having a first portion and a second portion; a retainer in the first portion for containment of product; a fold in the second portion such that the second portion is foldable towards the retainer to form a cover therefor; and a join between the cover and the retainer.

Preferably the sheet comprises an elongate strip. More preferably the retainer comprises a pocket or a hole.

In another aspect of the invention there is provided a carrier comprising a plurality of retainers in the first portion, wherein the second portion is foldable towards the plurality of retainers to form a cover therefor; and a join between the cover and the plurality of retainers.

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In a further aspect of the invention there is provided a carrier additionally comprising a fold in the first portion such that the first portion is foldable towards the retainer to form a base therefor; and a join between the base and the retainer.

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In one aspect of the invention there is provided a carrier additionally comprising an inert support within the retainer for bearing product thereon. Typically this support comprises a grid, mesh, sponge or disc to which product is entrapped, absorbed or adsorbed.

15

In another aspect of the invention there is provided a carrier comprising a second fold in the second portion to form a pull release tab.

Preferably, the pull release tab is shaped for ease of grip.

20

Preferably, the pull release tab has a looped end enabling it to be connected to a release mechanism incorporated within a device, such as an inhalation device, or for receipt of finger in manual release.

25

Preferably, the pull release tab has at least one perforation therein allowing it to be easily grasped by the user or otherwise allowing it to be connected to a release mechanism incorporated within a device such as an inhalation device.

30

In another aspect of the invention there is provided a carrier in multi-unit form comprising a series arrangement of a plurality of carriers as described above.

Preferably, each of the plurality of carriers is connected together.

35

More preferably, each of the plurality of carriers is formable from the same sheet or elongate strip.

In one aspect, the sheet or elongate strip has a point of weakness between each carrier in the series arrangement, thereby enabling separation of individual carriers from the sheet or elongate strip.

5

Preferably, the sheet or elongate strip is flexible to enable it to be formed for example, into a spiral, helical or zig-zag shape for incorporation into a suitable device, such as an inhalation device. More preferably, the sheet or elongate strip comprises material selected from the group consisting of metal foil, an organic polymeric material and paper. Most preferably, the carrier comprises a laminate.

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Preferably, the join is formable by a joining method selected from the group consisting of heat, laser, radio frequency, adhesive, staple, stamp, pressure and ultrasonic sealing.

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Preferably, the join is peelable to enable peelable access to the retainer.

Preferably, the retainer is shaped for receipt by a holder.

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In a further aspect, there is provided a carrier comprising a medicament therein. Preferably the medicament is in dry powder, tablet, liquid, paste, cream or capsular form. More preferably the medicament is selected from the group consisting of albuterol, salmeterol, ipratropium bromide, fluticasone propionate and beclomethasone dipropionate and salts or solvates thereof and any mixtures thereof.

25

According to another aspect of the present invention, there is provided an inhalation device comprising a housing in combination with a medicament carrier as described above. Preferably the housing includes a holder for receipt of the retainer of the carrier. More preferably the inhalation comprises a pull release tab and the pull release tab protrudes from the housing.

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Preferably the inhalation device comprises a release mechanism and the pull release tab connects to the release mechanism. More preferably, the release mechanism is separable from the housing of the inhalation device.

5 According to another aspect of the present invention, there is provided a method of making a carrier comprising forming a retainer in a first portion of a sheet or elongate strip; filling the retainer with product; folding a second portion of the sheet or elongate strip towards the retainer to form a cover therefor; and forming a join between the cover and the retainer.

10

In one aspect, there is provided a method comprising forming a plurality of retainers in a portion of a sheet or elongate strip; filling the plurality of retainers with product; folding a second portion of the sheet or elongate strip towards the plurality of retainers to form a cover therefor; and forming a join between the

15

cover and the plurality of retainers.

20

In an other aspect, there is provided a method of making a carrier as described above additionally comprising a fold in the first portion such that the first portion is foldable towards the retainer to form a base therefor; and a join between the base and the retainer.

25

Preferably there is provided a method of making a carrier in multi-unit form comprising successive iterations of the method described above to form a series arrangement of a plurality of carriers.

30

According to another aspect of the present invention, there is provided a method of opening a carrier as described above comprising pulling the pull release tab in order to enable access to the retainer.

In a further aspect of the present invention, there is provided the use of a carrier, as described above, for dispensing medicament.

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In a preferred aspect, the medicament is used in the treatment of respiratory disorders. More preferably the medicament is used in the treatment of asthma. Most preferably the medicament is salbutamol or albuterol.



In one aspect, there is provided a carrier comprising an electronic component therein. Preferably the electronic component is selected from the group consisting of semi-conductor, integrated circuit chip, fuse and battery.

5

In another aspect, there is provided a carrier comprising a food therein. Preferably the food is selected from the group consisting of meat, mycoprotein, milk, cheese, flour, pasta, rice, oil, sugar, confectionery, vegetable, herbal, snack, convenience and fruit foodstuffs.

10

In a further aspect, there is provided a carrier comprising a beverage therein. Preferably the beverage is selected from the group consisting of water, milk, coffee, cocoa, tea, fruit, carbonated and alcoholic drinks.

15

In one aspect, there is provided a carrier comprising a toiletry therein. Preferably the toiletry is selected from the group consisting of toothpaste, soap, mouthwash, shampoo, skin and face cream.

20

In another aspect, there is provided a carrier comprising a cleanser therein. Preferably the cleanser is selected from the group consisting of soap, detergent, enzymic preparation and organic solvent.

25

In a further aspect, there is provided a carrier comprising a disinfectant therein. Preferably the disinfectant is selected from the group consisting of sterilant, antiseptic and bleach.

30

In another aspect, there is provided a carrier comprising a light-sensitive material therein. Preferably the light-sensitive material comprises a photographic film.

35

In yet another aspect, there is provided a carrier comprising a marking material therein. Preferably the marking material is selected from the group consisting of toner, ink, dye, pigment, acid and alkali.

In one aspect, there is provided a carrier comprising a covering material therein. Preferably the covering material is selected from the group consisting of paint,

pigment, dye, corrosion inhibitor, electrical conductor, electrical insulator and static inhibitor.

In a further aspect, there is provided a carrier comprising a toy therein.

- 5 Preferably the toy is selected from the group consisting of model, figure, doll, animal, jigsaw and game.

In another aspect, there is provided a carrier comprising haberdashery therein.

- 10 Preferably the haberdashery is selected from the group consisting of button, bobbin, needle, pin, eye, hook and fastener.

In one aspect, there is provided a carrier comprising a tool therein. Preferably the tool comprises a domestic tool. More preferably, the domestic tool is selected from the group consisting of can opener, bottle opener, ring-pull  
15 opener, scissors, knife, fork and spoon.

Optionally the tool comprises a home maintenance tool. Preferably the home maintenance tool is selected from the group consisting of nail, screw, pin, wire, screwdriver, knife, brush, spanner, ruler and marker.

20

In another aspect, there is provided a carrier comprising stationery therein.

Preferably the stationery is selected from the group consisting of pencil, pen, ruler, crayon, eraser, marker, stencil, protractor, compass and paper.

- 25 In a further aspect, there is provided a carrier comprising an adhesive therein. Preferably the adhesive bonds materials selected from the group consisting of paper, plastic, wood, rubber, glass and metal.

In one aspect, there is provided a carrier comprising an agrochemical therein.

- 30 Preferably the agrochemical is selected from the group consisting of herbicide, insecticide, fungicide, rodenticide, nematocide, acaricide and plant growth regulator.

In another aspect, there is provided a carrier comprising a plant seed therein. Preferably the seed is derived from plants selected from the group consisting of monocotyledonous and dicotyledonous plants.

5 In a further aspect, there is provided a carrier comprising a contraceptive therein. Preferably the contraceptive is either a contraceptive device or a contraceptive drug. Preferably the contraceptive device is selected from the group consisting of condom, diaphragm, sponge and coil. Preferably the contraceptive drug is  
10 selected from the group consisting of spermicide, estrogen, ethinyl estradiol, progesterone, levonorgestrel and norgestrel.

In one aspect, there is provided a carrier comprising a medical instrument therein. Preferably the medical instrument is selected from the group consisting of scalpel, thermometer and syringe.

15 In another aspect, there is provided a carrier comprising laboratory equipment therein. Preferably the equipment is selected from the group consisting of dispenser tip, microbial filter, filter paper, aseptic container, petri-plate, vial, test tube, tissue-culture vessel and pipette.

20 In a further aspect, there is provided a carrier comprising a catemenial product therein. Preferably the catemenial product comprises a tampon.

In another aspect, there is provided a carrier comprising nicotine therein.

25 Preferred embodiments of the medicament carrier according to the present invention will now be described with reference to the accompanying drawings in which:

30 Fig. 1a is a cross-sectional perspective sideview of a first medicament carrier in accordance with the present invention in the closed configuration.

Fig. 1b is a cross-sectional perspective sideview of the first medicament carrier in accordance with the present invention in the open configuration.

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Figure 1c is a perspective sideview of a second medicament carrier in accordance with the present invention in the open and closed configuration.

Figure 1d is a perspective sideview of a third medicament carrier in accordance with the present invention in the open and closed configuration.

Fig. 2 is a perspective sideview of a fourth medicament carrier in a multi-dose form.

10 Fig. 3a is a perspective sideview of the insert of an inhalation device  
incorporating a medicament carrier, which is a variation of that shown in Figure  
1.

Fig. 3b is a cross-sectional front view of an inhalation device incorporating a medicament carrier, which is a variation of that shown in Figure 1, wherein the mouthpiece is in the closed configuration.

Fig. 3c is a cross-sectional front view of the inhalation device of Figure 3b, wherein the carrier is in the open configuration.

Fig. 4a is a perspective view of an inhalation device comprising a medicament carrier in accord with the present invention.

Fig. 4b is a cross-sectional front view of the insert of an inhalation device  
25 incorporating a medicament carrier, which is a variation of that shown in Figure  
1, wherein the mouthpiece is in the closed configuration.

Fig. 5a is a perspective sideview of part of the insert of an inhalation device incorporating a medicament carrier, which is a variation of that shown in Figure 1.

Fig. 5b is a cross-sectional sideview of an inhalation device incorporating a medicament carrier, which is a variation of that shown in Figure 1, wherein the carrier is in the closed configuration.

Fig. 5c is a cross-sectional sideview of the inhalation device of Figure 5b, wherein the carrier is in the open configuration.

5 Fig. 6a is a cross-sectional sideview of the insert of an inhalation device incorporating a medicament carrier, which is a variation of that shown in Figure 1, wherein the carrier is in the closed configuration.

10 Fig. 6b is a cross-sectional sideview of the insert of Figure 6a, wherein the carrier is in the open configuration.

Figure 1a shows a medicament carrier in the closed configuration comprising an elongate strip 10, whose first portion contains a blister 20 suitable for containing a powdered medicament. A second portion of the elongate strip is folded over once to form a cover for the blister 20 and folded a second time to define a pull release tab 30. The contents of the blister 20 are exposed by pulling the pull release tab 30 in a horizontal direction relative to the medicament retainer, either manually or by a release mechanism, to break the seal 25 around the periphery of the blister 20, so that the medicament carrier is then in the open configuration as shown in Figure 1b.

20 Figure 1b shows the medicament carrier of Figure 1a in the open configuration wherein the pull release tab 30 has been sufficiently peeled in order to break seal 25 around the periphery of the blister 20 thereby removing the cover portion and exposing the medicament contained therein.

25 Figure 1c shows a second embodiment of a medicament carrier according to the present invention. Elongate strip 10 has a series of retainers 21 each comprising a mesh which itself comprises a plurality of holes for containment of medicament. The first portion of elongate strip 10 is folded toward mesh 21 to form a base therefor, while the second portion is folded (in the direction shown by the arrows) to form a cover for mesh 21. On folding, seals 25 are formed around the periphery of mesh 21 between the cover (not shown) and base sheets. Medicament may be released from mesh 21 by pulling on tab 30 to break seal 25. The mesh 21 may in embodiments be substituted by a pocket for  
35 containment of medicament.

Figure 1d shows a medicament carrier comprising a plurality of mesh retainers 21 in the open and closed configuration. The first portion of elongate strip 10 is folded toward retainer 21 to form a cover sheet while the second portion is folded in the opposite direction to form a base (as shown by the arrows). Seals 25 are formed around retainer 21 between the cover and base sheets. A hole 16 in the base sheet secures the medicament carrier within an inhalation device (not shown) while corresponding hole 15 engages an opening mechanism in the device. The medicament carrier is opened by gripping tab 30 directly, or by engaging hole 30, and pulling in an anti-clockwise manner.

Figure 2 shows a combination of Figures 1a and 1b in both the open and closed configurations in which the medicament carrier is in a multi-dose form. The multi-dose medicament carrier is formed from an elongate strip incorporating a number of first portions each containing a blister 120. A corresponding second portion is folded over once as described above in order to define a cover for said blister 120 and folded a second time to form a pull release tab 130 with which to break the seal 125 and expose the medicament contained within the blister.

Figure 3a shows the insert of a first inhalation device designed to accommodate the medicament carrier of the present invention. The insert comprises a separate housing 240 and a flexible ring 250 which slots into said housing. The ring 250 has at least one notch 260 at a suitable point on the circumference. The blister 220 (shown in the open configuration for exemplification only) sits in the closed configuration in support 242 within the inhalation device and the looped pull release tab 230 engages with the notch 260 to form a release mechanism for opening the cover of the blister. Actuation of the release mechanism is achieved by the user gripping the ring and pulling it in a downwards motion, whereby the pull release tab 230 is automatically peeled backwards to expose the contents of the blister 220.

Figures 3b and 3c show a first inhalation device comprising the insert described in Figure 3a in the open and closed positions respectively. The medicament carrier of the present invention is housed in a recess 270 and connected to the ring 250 by the pull release tab 230 as described in Figure 3a above. In the

storage position (Figure 3b) the circumference of the ring 250 seals the mouthpiece 280 and actuation of the device from this position to the in-use position (Figure 3c) is achieved by a two-handed operation. In practice, this may be achieved by holding the body 290 of the device between thumb and forefinger and pulling the ring 250 in a downward motion as described in Figure 3a. It will be seen that this action causes the pull release tab 230 to be peeled backwards and the contents of the blister 220 to be exposed. Complete removal of the ring 250 from the body of the device 290 uncovers both the mouthpiece 280 and an airway 295 at the side of the device, enabling the blister contents to be inhaled through the mouthpiece 280.

Figures 4a and 4b show a second inhalation device comprising a similar insert to that described in Figure 3a. Figure 4a shows an inhalation device wherein the pull release tab 330 protrudes from the housing in order to be freely pulled by the patient. Actuation of the device is similar to that of the device in Figures 3b and 3c. This is achieved by pulling the pull release tab 330 as before (Figure 4a) and rotating a rigid ring 350 (Figure 4b) in order to uncover the mouthpiece 380 and airway 395 to allow the contents of the blister to be exposed.

Figure 5a shows part of the insert of an inhalation device encompassing a medicament carrier which is a variation of that shown in Figure 1a wherein the looped pull release tab 430 is attached to a notch 460 in the insert to provide a release mechanism. Ports 461 enable air flow through the inhalation device when in use.

Figures 5b and 5c show a third inhalation device for use with the insert of Figure 5a. The device comprises a tubular-shaped body 405 into which position 420 a blister is located when attached to an insert similar to that described in Figure 5a. The inhalation device has a mouthpiece 480 and a slidably movable projection 425. In the storage position (Figure 5b) the projection 425 is located close to the mouthpiece 480 so that both the mouthpiece and the airway 435 are covered. Actuation of the device from this position to the in-use position (Figure 5c) is achieved by sliding the projection 425 translationally to the forward locked position, thereby pulling tab 430 and exposing medicament within blister 420 for release. On inhalation by the patient through the mouthpiece 480, air is drawn

through airway 435 and then through passage 433 to the blister 420 wherein medicament is drawn out of the blister 420 through passage 434 and thence to the mouthpiece 480.

5 Figures 6a and 6b show a fourth inhalation device incorporating a medicament carrier which is a variation of that in Figure 1a in the open and closed positions, respectively. Figure 6a shows that when the air flows towards the sealing flap 555 in the direction shown, the contact between the sealing flap 555 and the edge of the blister 520 is not broken. Such airflow would be created by  
10 exhalation. When the free end of the strip 530 is pulled to expose the contents of the blister 520 and the direction of airflow reversed by inhalation, as shown on Figure 6b, then the sealing flap 555 is opened and the medicament present in the blister 520 is entrained in the airflow and carried through the device to be administered to the patient.

15 Standard methods of filling and sealing the medicament container may be used and form another aspect of the present invention. Such methods include entering a hollow, or a number of hollow, pin into a powder bed so that a defined quantity of powder is taken up into the or each pin. The pin, or number of pins,  
20 is then positioned above the individual medicament containers and the powder contained therein released by means of a piston. On removal of the pin, or pins, the medicament containers are sealed so that the powder is contained in a medicament container defined by the two portions of the elongate strip.

25 Suitable methods of sealing the medicament carrier include the use of adhesives, staples, stamps, pressure and welding methods selected from hot metal welding, radio frequency welding, laser welding and ultrasonic welding. Such sealing techniques may be used to form a suitable join around the periphery of the retainer which is capable of being peeled away by the patient or  
30 by a suitable release mechanism in a controlled manner when in use. The release mechanism may be designed to confer a mechanical advantage, thereby reducing the operating force required to break the seal.

35 Although not directly relevant to the present invention, it should be noted that medicaments suitable for administration by an inhalation device using the





salts, (e.g., as alkali metal or amine salts or as acid addition salts) or as esters (e.g., lower alkyl esters) or as solvates (e.g., hydrates) to optimise the activity and/or stability of the medicament and/or to minimise the solubility of the medicament in the propellant.

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Preferred medicaments are selected from albuterol, salmeterol, ipratropium bromide, fluticasone propionate and beclometasone dipropionate and salts or solvates thereof, e.g., the sulphate of albuterol and the xinafoate of salmeterol.

10

Medicaments can also be delivered in combinations. Preferred formulations containing combinations of active ingredients contain salbutamol (e.g., as the free base or the sulphate salt) or salmeterol (e.g., as the xinafoate salt) in combination with an antiinflammatory steroid such as a beclomethasone ester (e.g., the dipropionate) or a fluticasone ester (e.g., the propionate). A

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particularly preferred combination comprises salmeterol xinafoate salt and fluticasone propionate.

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It may be appreciated that any of the parts of the medicament carrier which contact the medicament may be coated with materials such as fluoropolymer materials which reduce the tendency of medicament to adhere thereto. Suitable fluoropolymers include polytetrafluoroethylene (PTFE) and fluoroethylene propylene (FEP).

25

It will be understood that the present disclosure is for the purpose of illustration only and the invention extends to modifications, variations and improvements thereto.

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The application of which this description and claims form part may be used as a basis for priority in respect of any subsequent application. The claims of such subsequent application may be directed to any feature or combination of features described therein. They may take the form of product, method or use claims or may include, by way of example and without limitation, one or more of the following claims:

### Claims

1. A carrier comprising a sheet having a first portion and a second  
5 portion; a retainer in said first portion for containment of product; a fold in said second portion such that the second portion is foldable towards said retainer to form a cover therefor; and a join between said cover and the retainer.
2. A carrier according to claim 1, wherein said sheet comprises an  
10 elongate strip.
3. A carrier according to either of claims 1 or 2, wherein said retainer comprises a pocket or a hole.
- 15 4. A carrier according to any of claims 1 to 3 comprising a plurality of retainers in the first portion, wherein the second portion is foldable towards said plurality of retainers to form a cover therefor; and a join between said cover and the plurality of retainers.
- 20 5. A carrier according to any of claims 1 to 3, additionally comprising a fold in said first portion such that the first portion is foldable towards the retainer to form a base therefor; and a join between said base and the retainer.
- 25 6. A carrier according to any of claims 1 to 5, additionally comprising an inert support within the retainer for bearing product thereon.
7. A carrier according to any of claims 1 to 6, comprising a second fold in the second portion to form a pull release tab.
- 30 8. A carrier according to claim 7, wherein said pull release tab is shaped for ease of grip.
9. A carrier according to either of claims 7 or 8, wherein the pull release tab has a looped end.

10. A carrier according to any of claims 7 to 10, wherein said pull release tab has at least one perforation therein.
11. A carrier in multi-unit form comprising a series arrangement of a plurality of carriers according to any of claims 1 to 10.
12. A carrier according to claim 11, wherein each of said plurality of carriers is connected together.
13. A carrier according to claim 12, wherein each of the plurality of carriers is formable from the same sheet or elongate strip.
14. A carrier according to claim 13, wherein said sheet or elongate strip has a point of weakness between each carrier in said series arrangement.
15. A carrier according to any claims 1 to 14, wherein the sheet or elongate strip is flexible.
16. A carrier according to any of claims 1 to 15, wherein the sheet or elongate strip comprises material selected from the group consisting of metal foil, an organic polymeric material and paper.
17. A carrier according to claim 16, wherein the carrier comprises a laminate.
18. A carrier according to any one of claims 1 to 17, wherein the join is formable by a joining method selected from the group consisting of heat, laser, radio frequency, adhesive, staple, stamp, pressure and ultrasonic sealing.
19. A carrier according to any one of claims 1 to 18, wherein the join is peelable to enable peelable access to the retainer.
20. A carrier according to any one of claims 1 to 19, wherein the retainer is shaped for receipt by a holder.

21. A carrier according to any one of claims 1 to 20, comprising a medicament therein.

22. A carrier according to claim 21, wherein said medicament is in dry  
5 powder, tablet, liquid, paste, cream or capsular form.

23. A carrier according to either of claims 21 or 22, wherein the  
medicament is selected from the group consisting of albuterol, salmeterol,  
ipratropium bromide, fluticasone propionate and beclomethasone dipropionate  
10 and salts or solvates thereof and any mixtures thereof.

24. An inhalation device comprising a housing in combination with a carrier  
as claimed in any of claims 21 to 23.

15 25. An inhalation device according to claim 24, wherein said housing  
includes a holder for receipt of the retainer of the carrier.

26. An inhalation device according to either of claims 24 or 25, wherein the  
carrier comprises a pull release tab and the pull release tab protrudes from the  
20 housing.

27. An inhalation device according to claim 26, wherein the inhalation  
device comprises a release mechanism and the pull release tab connects to the  
release mechanism.

25 28. An inhalation device according to claim 27, wherein said release  
mechanism is separable from the housing.

29. A method of making a carrier comprising forming a retainer in a first  
30 portion of a sheet or elongate strip; filling said retainer with product; folding a  
second portion of said sheet or elongate strip towards the retainer to form a  
cover therefor; and forming a join between said cover and the retainer.

30. A method according to claim 29 comprising forming a plurality of  
35 retainers in a said portion of said sheet or elongate strip; filling said plurality of

NOT FURNISHED UPON FILING

NO PRESENTADO(A) EN EL MOMENTO DE LA PRESENTACIÓN

NON SOUMIS(E) AU MOMENT DU DÉPÔT

40. A carrier according to any of claims 1 to 20, comprising a food therein.
41. A carrier according to claim 40, wherein said food is selected from the group consisting of meat, mycoprotein, milk, cheese, flour, pasta, rice, oil, sugar,  
5 confectionery, vegetable, herbal, snack, convenience and fruit foodstuffs.
42. A carrier according to any of claims 1 to 20, comprising a beverage therein.
- 10 43. A carrier according to claim 42, wherein said beverage is selected from the group consisting of water, milk, coffee, cocoa, tea, fruit, carbonated and alcoholic drinks.
44. A carrier according to any of claims 1 to 20, comprising a toiletry  
15 therein.
45. A carrier according to claim 44, wherein said toiletry is selected from the group consisting of toothpaste, soap, mouthwash, shampoo, skin and face cream.  
20
46. A carrier according to any of claims 1 to 20, comprising a cleanser therein.
47. A carrier according to claim 46, wherein said cleanser is selected from  
25 the group consisting of soap, detergent, enzymic preparation and organic solvent.
48. A carrier according any of claims 1 to 20, comprising a disinfectant therein.  
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49. A carrier according to claim 48, wherein said disinfectant is selected from the group consisting of sterilant, antiseptic and bleach.
50. A carrier according to any of claims 1 to 20, comprising a light-sensitive  
35 material therein.

51. A carrier according to claim 50, wherein said light-sensitive material comprises a photographic film.

5 52. A carrier according to any of claims 1 to 20, comprising a marking material therein.

53. A carrier according to claim 52, wherein said marking material is selected from the group consisting of toner, ink, dye, pigment, acid and alkali.

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54. A carrier according to any of claims 1 to 20, comprising a covering material therein.

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55. A carrier according to claim 54, wherein said covering material is selected from the group consisting of paint, pigment, dye, corrosion inhibitor, electrical conductor, electrical insulator and static inhibitor.

56. A carrier according to any of claims 1 to 20, comprising a toy therein.

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57. A carrier according to claim 56, wherein said toy is selected from the group consisting of model, figure, doll, animal, jigsaw and game.

58. A carrier according to any of claims 1 to 20, comprising haberdashery therein.

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59. A carrier according to claim 58, wherein said haberdashery is selected from the group consisting of button, bobbin, needle, pin, eye, hook and fastener.

60. A carrier according to any of claims 1 to 20, comprising a tool therein.

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61. A carrier according to claim 60, wherein said tool comprises a domestic tool.



62. A carrier according to claim 61, wherein said domestic tool is selected from the group consisting of can opener, bottle opener, ring-pull opener, scissors, knife, fork and spoon.

5 63. A carrier according to claim 60, wherein the tool comprises a home maintenance tool.

64. A carrier according to claim 63, wherein said home maintenance tool is selected from the group consisting of nail, screw, pin, wire, screwdriver, knife,  
10 brush, spanner, ruler and marker.

65. A carrier according to any of claims 1 to 20, comprising stationery therein.

15 66. A carrier according to claim 65, wherein said stationery is selected from the group consisting of pencil, pen, ruler, crayon, eraser, marker, stencil, protractor, compass and paper.

67. A carrier according to any of claims 1 to 20, comprising an adhesive  
20 therein.

68. A carrier according to claim 67, wherein said adhesive bonds materials selected from the group consisting of paper, plastic, wood, rubber, glass and metal.  
25

69. A carrier according to any of claims 1 to 20, comprising an agrochemical therein.

70. A carrier according to claim 69, wherein said agrochemical is selected  
30 from the group consisting of herbicide, insecticide, fungicide, rodenticide, nematocide, acaricide and plant growth regulator.

71. A carrier according to any of claims 1 to 20, comprising a plant seed  
35 therein.

72. A carrier according to claim 71, wherein said seed is derived from plants selected from the group consisting of monocotyledonous and dicotyledonous plants.

5 73. A carrier according to any of claims 1 to 20, comprising a contraceptive therein.

74. A carrier according to claim 73, wherein said contraceptive is either a contraceptive device or a contraceptive drug.

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75. A carrier according to claim 74, wherein said contraceptive device is selected from the group consisting of condom, diaphragm, sponge and coil.

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76. A carrier according to claim 74, wherein said contraceptive drug is selected from the group consisting of spermicide, estrogen, ethinyl estradiol, progesterone, levonorgestrel and norgestrel.

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77. A carrier according to any of claims 1 to 20, comprising a medical instrument therein.

78. A carrier according to claim 77, wherein said medical instrument is selected from the group consisting of scalpel, thermometer and syringe.

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79. A carrier according to any of claims 1 to 20, comprising laboratory equipment therein.

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80. A carrier according to claim 79, wherein said equipment is selected from the group consisting of dispenser tip, microbial filter, filter paper, aseptic container, petri-plate, vial, test tube, tissue-culture vessel and pipette.

81. A carrier according to any of claims 1 to 20, comprising a catemenial product therein.

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82. A carrier according to claim 81, wherein said catemenial product comprises a tampon.

83. A carrier according to any of claims 1 to 20, comprising nicotine therein.

5 84. A carrier as substantially herein described with reference to the accompanying drawings.

85. An inhalation device as substantially herein described with reference to the accompanying drawings.

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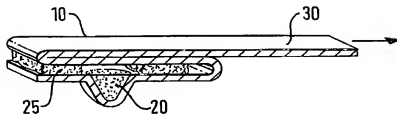
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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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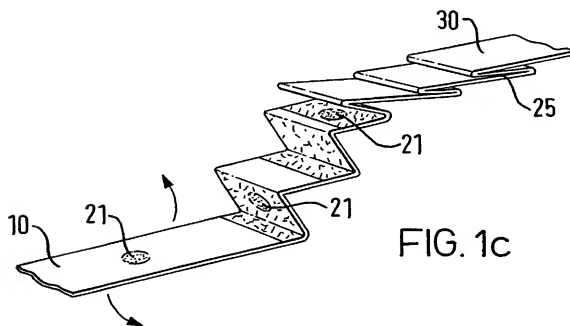
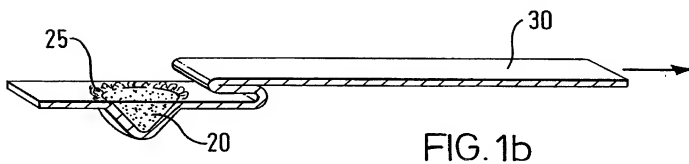
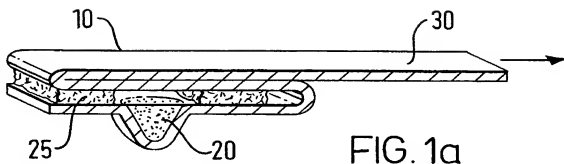
(54) Title: MEDICAMENT CARRIER



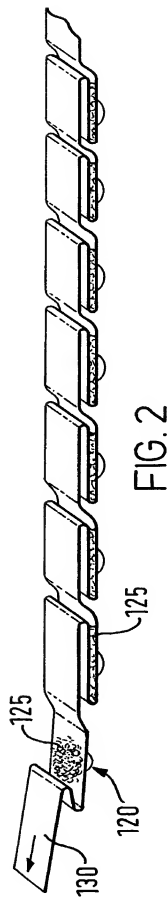
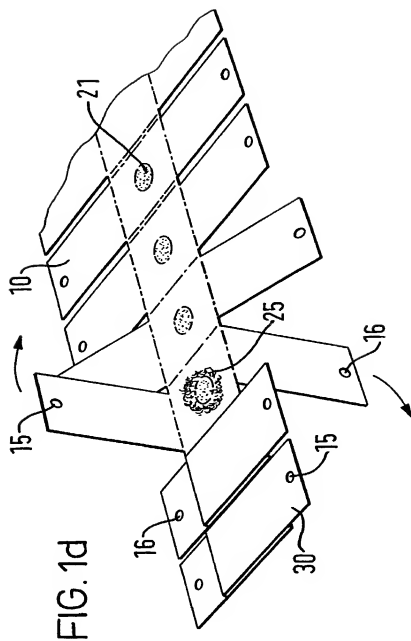
(57) Abstract

There is provided a carrier comprising a sheet (10) having a first portion and a second portion; a retainer (20) in said first portion for containment of product; a fold in said second portion such that the second portion is foldable towards said retainer to form a cover therefor; and a joint between said cover and the retainer. The carrier is suitable for the containment of a range of different products, particularly medicaments.

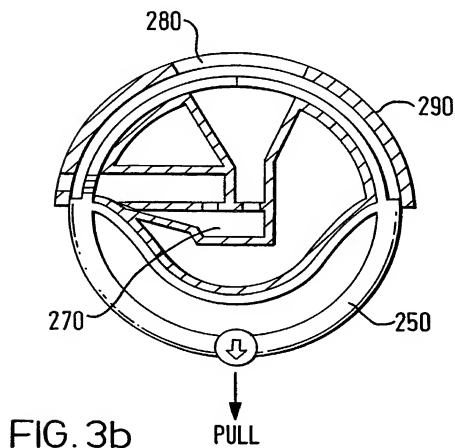
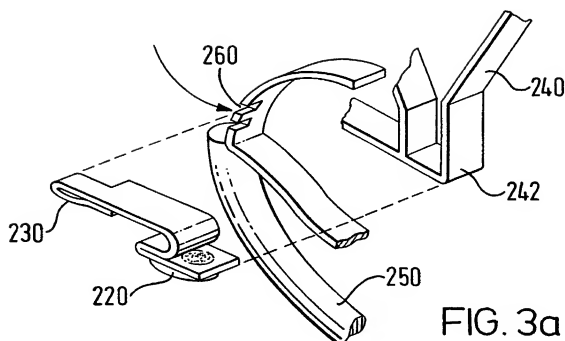
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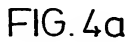


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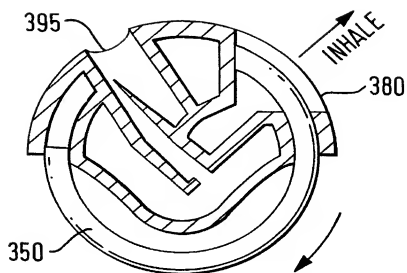


FIG. 4b

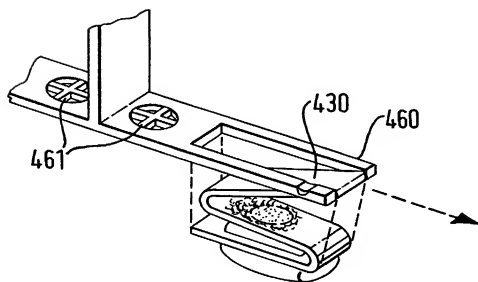


FIG. 5a

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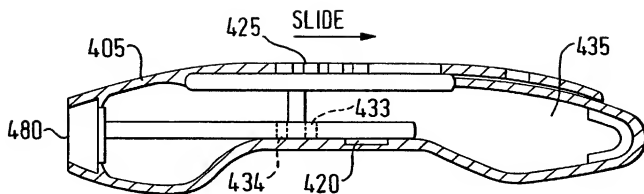


FIG. 5b

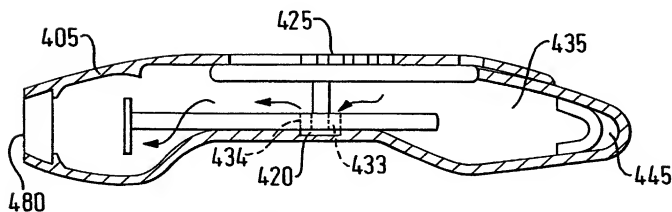


FIG. 5c

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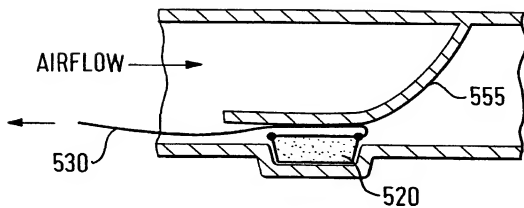


FIG. 6a

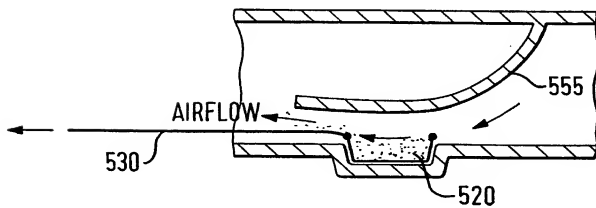


FIG. 6b

**COMBINED DECLARATION FOR UTILITY OR DESIGN PATENT  
APPLICATION WITH POWER OF ATTORNEY**

ATTORNEY'S DOCKET

PG3694USW

First Names Inventor:  
Stanley BONNEY**Complete if known:**  
App No.:

Filing Date

Group Art Unit:

- ( ) Declaration submitted with initial filing or
- ( ) Declaration submitted after initial filing (surcharge required 37CFR1.16(e))

As below named inventor. I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**MEDICAMENT CARRIER**

the specification of which (check only one item below):

[ ] is attached hereto.

OR

[ x ] was filed on **19 April 2000** as United States application Serial No. \_\_\_\_\_ or PCT International

Application Number **PCT/EP00/03518** filed and was amended on (MM/DD/YYYY) \_\_\_\_\_ (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR §1.56.

I hereby claim foreign priority benefits under 35, U.S.C. §119 (a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or of any PCT international application having a filing date before that of the application on which priority is claimed:

**PRIOR FOREIGN AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:**

Prior Foreign Application Number (s)	Country	Foreign Filing Date (MM/DD/YYYY)	PRIORITY CLAIMED
1 9909357.7	GB	4/24/1999	X
2			
3.			
4.			
5.			

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below:

Application No.	Filing Date (MM/DD/YYYY)
1.	
2.	
3.	
4.	

<b>COMBINED DECLARATION FOR UTILITY or DESIGN PATENT APPLICATION WITH POWER OF ATTORNEY</b> Continued				ATTORNEY'S DOCKET NUMBER <b>PG3694USW</b>	
<p>I hereby claim the benefit under 35 U.S.C. §120 of any United States application or §365(c) of any PCT international application designating the United States of America that is listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. §112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. §1.56 which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:</p>					
<b>PRIOR U.S. PARENT APPLICATION or PCT PARENT APPLICATION</b>					
U.S. Parent Application or PCT Parent Number		Parent Filing Date (MM/DD/YYYY)	STATUS (Check one)		
			PATENTED	PENDING	ABANDONED
<p><b>POWER OF ATTORNEY:</b> As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the U.S. Patent and Trademark Office connected therewith. (Last name and registration number)</p>					
David J. Levy Reg. No. 27,655 Charles E. Dadswell Reg. No. 35,851 Karen L. Prus Reg. No. 39,137 Robert H. Brink Reg. No. 36,094 Lorie Ann Morgan Reg. No. 38,181		James P. Rick Reg. No. 39,009 Virginia C. Bennett Reg. No. 37,092 Frank P. Grassler Reg. No. 31,164 Christopher P. Rogers Reg. No. 36,334		Bonnie L. Deppenbrock Reg. No. 28,209 John L. Lemnawicz Reg. No. 37,380 Amy H. Fix Reg. No. 42,616	
Send Correspondence to: <b>David J. Levy, Patent Counsel</b> Corporate Intellectual Property Department GlaxoSmithKline Five Moore Drive, PO Box 13398 Research Triangle Park, NC 27709			 <b>23347</b> PATENT TRADEMARK OFFICE		
			Direct Telephone Calls to  James P. Riek 919-483-8022		
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.</p>					
2	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME/INITIAL	
	<b>BONNEY</b>		<b>Stanley</b>	<b>George</b>	
	INVENTOR'S SIGNATURE	Signature X		Date: X	
0	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
		<b>Ware</b>	<b>GB</b>	<b>GB</b>	
1	POST OFFICE ADDRESS	CITY			
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		STATE & ZIP CODE/COUNTRY			
		<b>North Carolina 27709, US</b>			
2	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME/INITIAL	
	<b>DAVIES</b>		<b>Michael</b>	<b>Birsha</b>	
	INVENTOR'S SIGNATURE	Signature X		Signature X	
0	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
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		<b>Durham</b>			
		STATE & ZIP CODE/COUNTRY			
		<b>North Carolina 27709, US</b>			
2	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME/INITIAL	
	<b>GODFREY</b>		<b>James</b>	<b>William</b>	
	INVENTOR'S SIGNATURE	Signature		Date:	
0	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP	
		<b>Ware</b>	<b>GB</b>	<b>GB</b>	
3	POST OFFICE ADDRESS	CITY			
		<b>Durham</b>			
		STATE & ZIP CODE/COUNTRY			
		<b>North Carolina 27709, US</b>			

## DECLARATION FOR "371" APPLICATION 1261.011002

2	FULL NAME OF INVENTOR	FAMILY NAME <b>HAGLUND</b>	FIRST GIVEN NAME <b>Sylvia</b>	SECOND GIVEN NAME/INITIAL <b>Maria</b>
400	INVENTOR'S SIGNATURE	Signature <i>Sylvia Haglund</i>		Date: <b>13 Dec 2001</b>
0	RESIDENCE & CITIZENSHIP	CITY <b>Edinburgh</b>	STATE OR FOREIGN COUNTRY <b>GB G.B.N.</b>	COUNTRY OF CITIZENSHIP <b>GB</b>
4	POST OFFICE ADDRESS	POST OFFICE ADDRESS <b>4F1 5 Montpelier</b>	CITY <b>Edinburgh</b>	STATE & ZIP CODE/COUNTRY <b>EN10 4LZ GB</b>
2	FULL NAME OF INVENTOR	FAMILY NAME <b>RAND</b>	FIRST GIVEN NAME <b>Paul</b>	SECOND GIVEN NAME/INITIAL <b>Kenneth</b>
0	INVENTOR'S SIGNATURE	Signature		Date:
3	RESIDENCE & CITIZENSHIP	CITY <b>Ware</b>	STATE OR FOREIGN COUNTRY <b>GB</b>	COUNTRY OF CITIZENSHIP <b>GB</b>
	POST OFFICE ADDRESS	POST OFFICE ADDRESS <b>GlaxoSmithKline Five Moore Drive</b>	CITY <b>Durham</b>	STATE & ZIP CODE/COUNTRY <b>North Carolina 27709, US</b>

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PG3694USW

First Names Inventor:  
Stanley BONNEY**Complete if known:**

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Group Art Unit:

- ( ) Declaration submitted with initial filing or
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As below named inventor. I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**MEDICAMENT CARRIER**

the specification of which (check only one item below):

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## DECLARATION FOR "371" APPLICATION

COMBINED DECLARATION FOR UTILITY or DESIGN  
PATENT APPLICATION WITH POWER OF ATTORNEY

ATTORNEY'S DOCKET NUMBER

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Continued

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## PRIOR U.S. PARENT APPLICATION or PCT PARENT APPLICATION

STATUS (Check one)

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	PATENTED	PENDING	ABANDONED

**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the U.S. Patent and Trademark Office connected therewith (List name and registration number)

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Karen L. Prue Reg. No. 39,337  
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Lorie Ann Morgan Reg. No. 38,181

James P. Riek Reg. No. 39,009  
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Frank P. Grassler Reg. No. 31,164  
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John L. Lennanowicz Reg. No. 37,180  
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GlaxoSmithKline  
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Research Triangle Park, NC 27709



23347  
PATENT TRADEMARK OFFICE

Direct Telephone Calls to:

James P. Riek  
919-483-8022

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

1002	FULL NAME OF INVENTOR <b>BONNEY</b>	FAMILY NAME <b>BONNEY</b>	FIRST GIVEN NAME <b>Stanley</b>	SECOND GIVEN NAME/INITIAL <b>George</b>
0	INVENTOR'S SIGNATURE <i>[Signature]</i>	SIGNATURE <i>[Signature]</i>	DATE <b>12th Dec. '01</b>	
	RESIDENCE & CITIZENSHIP <b>Ware</b>	CITY <b>Ware</b>	STATE OR FOREIGN COUNTRY <b>GB GBN</b>	COUNTRY OF CITIZENSHIP <b>GB</b>
1	POST OFFICE ADDRESS <b>GlaxoSmithKline Five Moore Drive</b>	POST OFFICE ADDRESS <b>GlaxoSmithKline Five Moore Drive</b>	CITY <b>Durham</b>	STATE & ZIP CODE/COUNTRY <b>North Carolina 27709, US</b>
200	FULL NAME OF INVENTOR <b>DAVIES</b>	FAMILY NAME <b>DAVIES</b>	FIRST GIVEN NAME <b>Michael</b>	SECOND GIVEN NAME/INITIAL <b>Birsha</b>
0	INVENTOR'S SIGNATURE <i>[Signature]</i>	SIGNATURE <i>[Signature]</i>	DATE <b>13th Dec 2001</b>	
	RESIDENCE & CITIZENSHIP <b>Ware</b>	CITY <b>Ware</b>	STATE OR FOREIGN COUNTRY <b>GB GBN</b>	COUNTRY OF CITIZENSHIP <b>GB</b>
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300	FULL NAME OF INVENTOR <b>GODFREY</b>	FAMILY NAME <b>GODFREY</b>	FIRST GIVEN NAME <b>James</b>	SECOND GIVEN NAME/INITIAL <b>William</b>
0	INVENTOR'S SIGNATURE <i>[Signature]</i>	SIGNATURE <i>[Signature]</i>	DATE <b>13th Dec 2001</b>	
	RESIDENCE & CITIZENSHIP <b>Ware</b>	CITY <b>Ware</b>	STATE OR FOREIGN COUNTRY <b>GB GBN</b>	COUNTRY OF CITIZENSHIP <b>GB</b>
3	POST OFFICE ADDRESS <b>GlaxoSmithKline Five Moore Drive</b>	POST OFFICE ADDRESS <b>GlaxoSmithKline Five Moore Drive</b>	CITY <b>Durham</b>	STATE & ZIP CODE/COUNTRY <b>North Carolina 27709, US</b>



## DECLARATION FOR "371" APPLICATION

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	INVENTOR'S SIGNATURE	Signature X		Date X
0	RESIDENCE & CITIZENSHIP	CITY <b>Edinburgh</b>	STATE OR FOREIGN COUNTRY <b>GB</b>	COUNTRY OF CITIZENSHIP <b>GB</b>
4	POST OFFICE ADDRESS	POST OFFICE ADDRESS <b>4F1 5 Montpelier</b>	CITY <b>Edinburgh</b>	STATE & ZIP CODE/COUNTRY <b>EN10 4LZ GB</b>
500	FULL NAME OF INVENTOR	FAMILY NAME <b>RAND</b>	FIRST GIVEN NAME <b>Paul</b>	SECOND GIVEN NAME/INITIAL <b>Kenneth</b>
	INVENTOR'S SIGNATURE	Signature X <i>Paul Kenneth Rand</i>		Date X <i>20th Dec 2001</i>
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